

AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A speech recognition dictionary creation device for creating a speech recognition dictionary, said device comprising:

an abbreviated word generation unit operable to generate an abbreviated word of a recognition object that includes constituent words, based on a generation rule, out of candidates including the abbreviated word of the recognition object generated by concatenating

i) the constituent words into which the recognition object is divided and which are not adjacent each other,

ii) parts of the constituent words into which the recognition object is divided, and

iii) a modifier and a modified word;

a vocabulary storage unit operable to store, as the speech recognition dictionary, the generated abbreviated word together with the recognition object and an utterance probability of the abbreviated word based on one of the generated rule and ease of pronunciation of the abbreviated word;

a word division unit operable to divide the recognition object into the constituent words;
and

a syllable string generation unit operable to generate syllable strings of each constituent word in the constituent words based on readings of the divided recognition object,

wherein one syllable represents a phoneme that is one sound and is either one vowel sound or a set of one vowel sound and one or more consonant sounds, ~~and~~

wherein said abbreviated word generation unit is operable to generate the abbreviated word including one or more syllables by extracting one or more syllables from the syllable strings of the constituent words and concatenating the extracted one or more syllables based on the syllable strings of the constituent words generated by said syllable string generation unit, and

wherein said abbreviated word generation unit is operable to generate the abbreviated word by deleting one or more syllables from the syllable strings generated by said syllable string generation unit.

2. (Cancelled)

3. (Previously Presented) The speech recognition dictionary creation device according to Claim 1,

wherein said abbreviated word generation unit includes:

an abbreviated word generation rule storage unit operable to store a generation rule for generating an abbreviated word using syllables;

a candidate generation unit operable to generate candidate abbreviated words, each including one or more syllables, by extracting one or more syllables from the syllable strings of the constituent words and concatenating the extracted one or more syllables; and

an abbreviated word determination unit operable to determine an abbreviated word for final generation, by applying the generation rule held by said abbreviated word generation rule storage unit to the generated candidate abbreviated words.

4. (Previously Presented) The speech recognition dictionary creation device according to Claim 3,

wherein said abbreviated word generation rule storage unit is operable to store a plurality of generation rules,

said abbreviated word determination unit is operable to calculate a likelihood under each of the generation rules stored in said abbreviated word generation rule storage unit and to determine an utterance probability by comprehensively taking into account the calculated likelihoods, the utterance probability being determined for each of the generated candidate abbreviated words, and

said vocabulary storage unit is operable to store the abbreviated word and the utterance probability that are determined by said abbreviated word determination unit.

5. (Previously Presented) The speech recognition dictionary creation device according to Claim 4,

wherein said abbreviated word determination unit is operable to determine the utterance probability by summing up values that are obtained by multiplying the likelihoods for the generation rules by corresponding weighting factors.

6. (Original) The speech recognition dictionary creation device according to Claim 5,

wherein said abbreviated word determination unit is operable to determine that a candidate abbreviated word is the abbreviated word for final generation in the case where the utterance probability of the candidate abbreviated word exceeds a predetermined threshold.

7. (Previously Presented) The speech recognition dictionary creation device according to Claim 4,

wherein said abbreviated word generation rule storage unit is operable to store a first rule concerning dependency relationship between words, and

said abbreviated word determination unit is operable to determine, based on the first rule, the abbreviated word for final generation from among the candidates.

8. (Original) The speech recognition dictionary creation device according to Claim 7,

wherein the first rule includes a condition that an abbreviated word should be generated using a modifier and a modified word as a pair.

9. (Original) The speech recognition dictionary creation device according to Claim 7,

wherein the first rule includes a rule indicating a relationship between the likelihood and a distance between a modifier and a modified word that make up an abbreviated word.

10. (Previously Presented) The speech recognition dictionary creation device according to Claim 4,

wherein said abbreviated word generation rule storage unit is operable to store a second rule that is related to at least one of a length of a partial syllable string and a position of the partial syllable string, the length being a length of the partial syllable string that is extracted from a syllable string of the constituent word when an abbreviated word is generated, and the position being a position of the partial syllable string in the constituent word, and

said abbreviated word determination unit is operable to determine, based on the second rule, the abbreviated word for final generation from among the candidates.

11. (Previously Presented) The speech recognition dictionary creation device according to Claim 10,

wherein the second rule includes a rule indicating a relationship between the likelihood and a number of syllables indicating the length of the partial syllable string.

12. (Previously Presented) The speech recognition dictionary creation device according to Claim 10,

wherein the second rule includes a rule indicating a relationship between the likelihood and a number of syllables indicating a distance from a top of the constituent word to the partial syllables string, the distance indicating the position of the partial syllable string in the constituent word.

13. (Previously Presented) The speech recognition dictionary creation device according to Claim 4,

wherein said abbreviated word generation rule storage unit is operable to store a third rule related to concatenated partial syllable strings that make up an abbreviated word, and

said abbreviated word determination unit is operable to determine, based on the third rule, the abbreviated word for final generation from among the candidates.

14. (Previously Presented) The speech recognition dictionary creation device according to Claim 13,

wherein the third rule includes a rule indicating a relationship between the likelihood and a combination of a last syllable and a top syllable, the last syllable being included in a former of the concatenated two partial syllable strings and the top syllable being included in a latter of the concatenated two partial syllable strings.

15. (Previously Presented) The speech recognition dictionary creation device according to Claim 1, further comprising:

an extraction condition storage unit operable to store a condition for extracting the recognition object from character string information that includes the recognition object;

a character string information obtainment unit operable to obtain the character string information that includes the recognition object; and

a recognition object extraction unit operable to extract the recognition object from the character string information obtained by said character string information obtainment unit according to the condition stored by said extraction condition storage unit, and to send the extracted recognition object to said word division unit.

16. (Original) A speech recognition device that recognizes an input speech by comparing the input speech with a model corresponding to a vocabulary registered in a speech recognition dictionary, said device comprising

a recognition unit operable to recognize the speech using the speech recognition dictionary created by the speech recognition dictionary creation device according to Claim 1.

17. (Original) The speech recognition device according to Claim 16, wherein the abbreviated word and the utterance probability of the abbreviated word are registered into the speech recognition dictionary together with the recognition object, and

said recognition unit is operable to recognize the speech by taking into account the utterance probability registered in the speech recognition dictionary.

18. (Original) The speech recognition device according to Claim 17, wherein said recognition unit is operable (i) to generate a candidate for a recognition result of the speech and a likelihood of the candidate, (ii) to add a likelihood corresponding to the utterance probability to the generated likelihood, and (iii) to output the candidate as a final recognition result based on the resulting addition value.

19. (Previously Presented) The speech recognition device according to Claim 16, further comprising:

an abbreviated word use history storage unit operable to store, as use history information, an abbreviated word recognized for the speech and a recognition object corresponding to the abbreviated word; and

an abbreviated word generation control unit operable to control generation of an abbreviated word by the abbreviated word generation unit based on the use history information stored by said abbreviated word use history storage unit.

20. (Previously Presented) The speech recognition device according to Claim 19, wherein the abbreviated word generation unit of the speech recognition dictionary creation device includes:

an abbreviated word generation rule storage unit operable to store a generation rule for generating an abbreviated word using syllables;

a candidate generation unit operable to generate candidate abbreviated words, each being made up of one or more syllables, by extracting one or more syllables from the syllable strings of the respective constituent words and concatenating the extracted syllables; and

an abbreviated word determination unit operable to determine an abbreviated word for final generation, by applying the generation rule stored by said abbreviated word generation rule storage unit to the generated candidate abbreviated word, and

said abbreviated word generation control unit is operable to control the generation of the abbreviated word by making one of change, deletion, and addition to the generation rule held by the abbreviated word generation rule storage unit.

21. (Original) The speech recognition device according to Claim 16, further comprising:

an abbreviated word use history storage unit operable to hold, as use history information, an abbreviated word recognized for the speech and a recognition object corresponding to the abbreviated word; and

a dictionary revision unit operable to revise the abbreviated word stored in the speech recognition dictionary based on the use history information held by said abbreviated word use history storage unit.

22. (Original) The speech recognition device according to Claim 21, wherein the abbreviated word and the utterance probability of the abbreviated word are registered into the speech recognition dictionary together with the recognition object, and said dictionary update unit is operable to revise the abbreviated word by changing the utterance probability of the abbreviated word.

23. (Original) A speech recognition device that recognizes an input speech by comparing the input speech with a model corresponding to a vocabulary registered in a speech recognition dictionary, said device comprising:

the speech recognition dictionary creation device according to Claim 1; and
a recognition unit operable to recognize the speech using the speech recognition dictionary created by said speech recognition dictionary creation device.

24. (Currently Amended) A speech recognition dictionary creation method for creating a speech recognition dictionary, using a speech recognition dictionary creation device including an abbreviated word generation unit and a vocabulary storage unit, said method comprising:

generating, with use of the abbreviated word generation unit, an abbreviated word of a recognition object that includes a plurality of constituent words based on a rule that takes into account ease of pronunciation and by concatenating i) the plurality of constituent words into which the recognition object is divided and which are not adjacent each other, ii) parts of the plurality of constituent words into which the recognition object is divided, and iii) a modifier and a modified word;

registering, into the speech recognition dictionary, the generated abbreviated word, using the vocabulary storage unit, together with the recognition object

dividing the recognition object into the plurality of constituent words using a word division unit; and

generating syllable strings of the plurality of constituent words based on readings of the divided recognition object using a syllable string generation unit,

wherein one syllable represents a phoneme that is one sound and is either one vowel sound or a set of one vowel sound and one or more consonant sounds,

wherein the abbreviated word generation ~~unit is operable to generate~~generates the abbreviated word including one or more syllables by extracting one or more syllables from the syllable strings of the plurality of constituent words and concatenating the extracted one or more syllables based on the syllable strings of the plurality of constituent words generated by the syllable string generation unit, and

wherein said abbreviated word generation unit generates the abbreviated word by deleting one or more syllables from the syllable strings generated by said syllable string generation unit.

25. (Cancelled)

26. (Original) A speech recognition method for recognizing an input speech by comparing the input speech with a model corresponding to a vocabulary registered in a speech recognition dictionary, said method comprising the step of

recognizing the speech using the speech recognition dictionary created by the speech recognition dictionary creation method according to Claim 24.

27. (Original) A speech recognition method for recognizing an input speech by comparing the input speech with a model corresponding to a vocabulary registered in a speech recognition dictionary, said method comprising:

the steps included in the speech recognition dictionary creation method according to Claim 24; and

a step of recognizing the speech using the speech recognition dictionary created by the speech recognition dictionary creation method.

28. (Currently Amended) A non-transitory computer readable medium storing a program for a speech recognition dictionary creation device that creates a speech recognition dictionary, said program causing a computer to execute the steps included in the speech recognition dictionary creation method according to Claim 24.

29. (Currently Amended) A non-transitory computer readable medium storing a program for a speech recognition device that recognizes an input speech by comparing the input speech with a model corresponding to a vocabulary registered in a speech recognition dictionary, said program causing a computer to execute the step included in the speech recognition method according to Claim 26.

30. (Canceled)